

From the Outside In

The Secret to Automatic Language Growth

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Preface

I've been trying to learn languages and teach them all my life. I spent the war trying to learn Chinese, and I spent the next 50 years trying to learn 20 more languages and trying to teach two.

All this time I was aware, of course, that the only language I *really* learned was the one I didn't *try* to learn. In an educational system where *trying* is king, how could we ever hope to find out that *trying* was the villain? It took *me* a lifetime to see this, and the purpose of this book is to tell you about that lifetime.

There are three great scholars, especially, who contributed to my ideas. Their books will help to show where I'm coming from, and their bibliographies will serve to connect my thinking to the relevant literature.

William T. Powers. **Behavior: The Control of Perception** (1973), Aldine Publishing Company. **Living Control Systems** (1989) and **Living Control Systems II** (1992). The Control Systems Group, Inc., Gravel Switch, Kentucky.

Stephen D. Krashen. **The Input Hypothesis** (1985). Longman, New York.

Gary Cziko. **The Things We Do** (2000). The MIT Press, Cambridge, Mass.

Contents

Introduction	page 6
1. Growing Up: Age 3-20	page 8
2. The Three Veils: Age 3-20	page 11
3. The Professional Student: Age 20-37	page 16
4. The Linguist: Age 37-55	page 22
5. The Second Wind: Age 45-70	page 28
6. The Conversion: Age 55-60	page 33
7. Putting Cascades in the Classroom: Age 60-70	page 37
Conclusion	page 42

Introduction

Just how often do we appear to be looking backwards? As we look through the history of science, don't we usually start out getting everything exactly backwards? Look.

1. *The earth is flat.*

No. It's round.

2. *The sun revolves around the earth.*

No. The earth revolves around the sun.

3. *Fire consists of the release of phlogiston.*

No. It's the taking in of oxygen.

4. *Animals change in order to better fit their environment.*

No. They find environments to fit their accidental changes.

Why do you suppose we're always getting everything *backwards*? We would expect, of course, to start out getting things *wrong*. But why exactly *backwards*? Our perceptions are backwards. Our language is backwards. And this is as it should be. But if for some reason we want to understand *reality*, we've got to look *from the outside in*. Like everyone else, Copernicus looked from the earth outward and saw the sun revolving around the earth, and he used words like 'sunrise' and 'sunset'. But when he wondered about *reality*, he put himself outside the earth. I'll call it 'the Copernican principle': looking from the outside in.

But where's the Copernican principle when it comes to language learning? All language 'study' starts from 'I' and works out ('I' is the driving force: 'I' am studying the language). But while all 'students' of language are proceeding from the inside out (like swimming upstream), all toddlers are caught in a cascade of happenings that batter them from the outside. And what about adults picking up a language in daily life? Aren't they caught in a cascade of daily happenings like the toddlers? No. They almost always start from 'I' to drive their actions. Instead of just getting hit by the happenings, they insist on starting from 'I' and asking questions like 'What does that mean?', 'How do you say this?', and 'How do you spell it?'

People everywhere have always noticed the vast difference in language learning between 'doing' and 'being done'. But since the 'doers' were almost always adults and those 'being done' were almost always children, they made the wrong connection. They focused on *age*—not *direction*. "Children have a magic that gets lost at puberty," they said. The following story compares two adults taking up life in a new language.

A Tale of Two Wives

Mary meets and marries Chai while they're both studying at a university in the States. After a few years they go to live with Chai's family in Thailand. It's a typical extended Thai family: Chai's parents, brothers and sisters, and all their children. Maybe 20 people who can speak only Thai. Her husband is the only one who can speak English. After introductions, Chai's mother smiles at Mary, says something to her in Thai, and waits for an answer. Mary is embarrassed and asks

Chai, “What’d she say? What’d she say?” Chai tells her, “She asked you what you think of Thailand.” Mary then asks him “How do you say ‘I like it very much’?” Chai tells her the Thai for this. Mary doesn’t quite catch the words and asks, “How do you spell that?” She then proceeds to produce a fractured version of the sentence for her mother-in-law. This kind of struggling continues with slow progress for 2 years, but Mary still can’t understand very much and it’s very hard for others to understand her. She decides to take a course in Thai, but the course and the textbook also consist of telling her ‘What that means’, ‘How you say this’, and ‘How you spell it’. It just does this a lot more professionally than Chai did. She never really learns to use Thai well.

***Zambi** came from the village of Makui in central Africa a hundred years ago and her parents arranged for her to marry a man in the village of Mujambi, which spoke a completely different language. She arrived there not knowing a word of Mujambi and nobody there knew any Makui—not even her husband. During the day, while her husband was hunting with the other men, the women took Zambi along with them as they did their basket weaving and gardening. At night everybody sat around the fire and listened to stories. Zambi’s daily life could be described as ‘silently tagging along’. After a year of this she understood almost everything that went on around her and could say a few words and phrases. After 2 years she was quite fluent, and after 3 or 4 years she was almost like a native Mujambi villager.*

We don’t have to go to the Africa of 100 years ago to find people using Zambi’s way. We all used it ourselves. That’s how we learned our native language: tagging along without trying to say anything for the first year. It works for children. It worked for Zambi. Why doesn’t it work for everyone? The common belief is that we lose the child’s magic as we grow up. But what about Zambi? The answer seems to lie in the second part: *not trying to say anything for the first year*. Adults just can’t resist Mary’s way when it’s available. But it isn’t available to little children and it wasn’t available to Zambi. *That’s the secret!*

I can see the secret clearly now—and I can see how it happens and why. I needed a lot more than an explanation. I needed a lifetime. So instead of telling you my secret, I’m going to tell you my lifetime.

Chapter 1 - Growing Up: Age 3-20

The Kid: Age 3-6

“What do you want to be when you grow up?” I hated that question. How should I know? I didn’t know the answer until after seven years of college. Grownups are always embarrassing kids with questions they can’t answer. As I look back now I can see that the only thing I wanted to be was *loved*. And loved I was--unconditionally. But years later I found out that my mother had been telling people I wanted to be *a professor of foreign languages*. I don’t know where she got that. As a child I had always said I wanted to be a forest ranger. But only because I had to say *something* and I was darned if I was going to be like everyone else and say I wanted to be a cowboy. Looking at it now, there were two points basic to my nature and my future. More than anything else I wanted to be *loved*, and second to this I wanted to be *different*. (And apparently my mother knew something I didn’t.)

I can’t remember much before I was 3. This is unfortunate for my present purposes since most language learning takes place during this time. All I can do is to observe a 2-year-old and try to guess what’s happening on the inside. Anyway, I’ll start my story from the age of 3. At this age I spent hours sitting on the potty--‘thinking’. My parents and sisters said I was ‘thinking and stinking’. “What are you thinking about?” they kept asking. It’s hard to put my 3-year-old answer into words, but it felt something like this. “*Me? Thinking? I’m not doing the thinking—the thinking is doing me.*” You see I wasn’t to learn the passive voice until I was 5 or 6. It’s one of the last things we learn in childhood English, but it’s the first thing we learn in ‘thought’ and I knew it well. In fact the passive was the story of my little life. The thinking just *happened*—like the stinking. The winds strummed me like a harp. I was later to hear that ‘life is a cabaret, old chum’, but most of the things that *did* me were more like a *cascade* than a cabaret. Oh, sometimes they were only a *trickle* (sleeping), sometimes a *flow* (thinking and stinking), but most of the time they were a veritable *cascade*. Bathing me, rocking me, jostling me, buffeting me, pounding me. And what did I do? Passive little me? I didn’t *do*—I *was done*. I just *bathed* in the cascades. I smiled, giggled, cried, flinched, shivered, purred. These cascades of happenings were often laced with speaking. And they kept coming. Into my eyes, my ears, my nose, my mouth, my throat. They came in here, they went round and round, and two years later they came out here: *speaking happened* (just like stinking and thinking had). I had all the answers then. I wasn’t confused by those unknowns created by adults: “Where did I come from?” “What am I here for?” For me it was as simple as this: “I happened.” 68 years later when I retired and returned to the States from abroad, I heard a new slang expression that gave me new hope for the adult mentality with its self-created confusion: ‘Shit happens.’

I wasn’t a problem child. My mother told me I was a parent’s dream. But that was on the outside. On the inside I sometimes felt great contempt for the adult mentality. “You’ll understand when you grow up,” they kept telling me. And of course they were usually right. But not always. Not with things like ‘thinking happens’ and ‘speaking happens’. I *didn’t* understand the adult versions of these things when I grew up—not yet, anyway. I encountered some pretty profound thinking in my 20 years of college, but I often thought that ‘profound’ was another word for ‘nonsense’. ‘I think, therefore I am,’ for example. What *is* this thing called ‘I’, anyway? Some little neuron sitting at a control panel making all those decisions?

But to be fair, I should tell you my clearest 3-year-old memory. We were at Lagoon, an amusement park north of Salt Lake. My mother was getting me ready to go swimming and was trying to get me

into my little swimming suit. She stood me about 30 feet from the main walkway, turned me away from it, and pulled down my pants. I swung myself around to face the walkway and she swung me back. I was furious. I knew about the modesty of my peter and my behind. But I also had a keen sense of conceptual geometry. My behind was the size of a plate and my peter was more like a peanut. I visualized a plate full of peanuts to clearly illustrate the vast difference in size. I could also see that the clarity of vision of the people trying to sneak a peek was inversely proportional to the square of the distance. I couldn't express this in the confusing way adults do, of course, but I could clearly visualize cones of vision coming from my eyes, and I could see that a little distance out along these cones resulted in a big difference in area and thus reduced greatly the clarity of vision. From 30 feet they couldn't even see that I *had* a peter, but they could clearly see my behind. I couldn't tolerate such stupidity and I kept twisting myself around. I felt like Mom needed a course in conceptual geometry. The feeling of contempt that I felt toward my mother is the clearest part of the memory and to this day I feel it whenever I see a little kid reacting to adult stupidity. But when I grew up I had to admit that Mom was right. I learned a new principle: the degree of modesty is not necessarily proportional to the size. Sorry about that, Mom.

I learned about language when I was 4. Before that I didn't even know it was there. Like air. But a Mexican playmate changed that (little Leo spoke both Spanish and English). One day cousin Zina was worrying about a test in college Spanish. It took us quite some time to figure out what her problem was, but we sure had a good laugh when we saw how much smarter little Leo was than 20 year-old Zina. Then a profound thought came to me (I'm translating my wide-eyed feeling with the adult word 'profound'). *I can speak English!*

When I was 5 my father gave me my first lesson in science. He put a dot on an orange and held it in front of a lamp. The orange was the earth, the lamp was the sun, and the dot was me. I was on the dark side of the orange and couldn't see the lamp. Then he rotated the orange so that the lamp came into the view of the dot (sunrise), passed overhead (noon), and went out of view (sunset). The world I knew suddenly expanded to include wonders without end. "There are two versions of *everything*," I generalized. "There's what we *see* and there's what's *there*. And what's there can *explain* what we *see*. *Whew!*" The next time I felt a tingle like that was when I encountered Darwin's theory of evolution.

I remember my shock when I found out there had never been a Mormon president of the United States. We all knew that America was the greatest country in the world, Utah was the best state in the country, Mormonism was the true religion, and so on. And yet not one of America's greatest men had managed to find the true religion? What did that make me? I was *born* with it! My mother explained this with one of her adult words: 'predestination' or something like that. I took it to mean 'just lucky I guess'. But then I started asking around. Little Ake said *Japan* was the greatest country; little Johnny said *California* was the best state; and little Leo said *Catholicism* was the true religion. Of course Ake was from Japan, Johnny was from California, and Leo was Catholic. "*Duh!?*" (The feeling was clear; the word for it came 50 years later.) I wasn't looking at *the* world. I was looking at *my* world. Ake was looking at *his*, and Leo at *his*. Everyone had their own world. Here a world, there a world I took it all in stride: the expanded world from my father's lesson and the many worlds of my playmates. But my future was clear. Just as I was darned if I was going to say I wanted to be a cowboy when I grew up, I was also darned if I was going to be taken in by my fortuitous upbringing. From then on, while everyone else was smugly getting their kicks out of reveling in their upbringing, I would get my kicks out of *defying* mine. *Dammit!*

Kindergarten was a wild time. It was my first social experience and I reacted not as a passive receiver but an active doer. I was the leader of all the boys and Beth Adel was the leader of all the

girls. The two of us together ruled like king and queen. One day while we were together on our throne, I kissed her. Right in front of everybody. It's a good thing this was 1930. In 1997 I could have been arrested for sexual harassment.

At the age of 6, I had already picked up two major insights into the world and I had graduated from the school of childhood cascades with honors in six subjects.

- | | |
|-----------------------|------------------------------------------------------|
| 1. Philosophy. | Thinking happens. |
| 2. Math. | Conceptual geometry. |
| 3. Language learning. | Native mastery of spoken childhood English. |
| 4. Science. | The expanded world: 'Things are not what they seem.' |
| 5. Objectivity. | The many worlds: 'It ain't necessarily so.' |
| 6. Social life. | Ruling kindergarten with my queen. |

And you know what? Without any study whatsoever I had reached a level in philosophy and science that the greatest philosophers and physicists haven't yet reached today (in my humble opinion).

The Misfit: Age 6-20

Hello study, goodbye cascades—at least during class time activities. This was something completely new. *Study*. Normal kids didn't like it. Whenever possible they rushed from study to things like games, sports, activities, parties—even carousing and gangs. Anything to get away from that ridiculous thing called 'study' and get a cascade 'fix'. But study was the thing that got rewarded. 'Work hard and make good grades.' Maybe it was *rewards* that molded me. More than anything I wanted to be loved, and my good grades earned me so much motherly love I quivered.

Do you think it's possible that those study-hating, cascade-loving, normal kids knew something the rest of us didn't? Could they have known instinctively that knowledge should be *grown*—not *stacked*? The teachers sure didn't know this. And our parents didn't. And I didn't. I had to wait 60 more years for *this* insight. In the meantime I kept *stacking* knowledge from classes and books while the normal kids were *growing* knowledge from life. 'King of kindergarten' may have been 'king' to my peers, but 'king of first grade' was called 'nerd'.

I went through 11 years of school and 4 years of college without ever speaking socially to a girl. Even though I didn't know the reason (which I now see as 'cascade deprivation'), I knew something was wrong. So did my friends—and they occasionally tried to help me. One day in junior high, for example, there was some kind of daytime party in the gym with dancing and snacks. One of my friends, trying to be helpful, said "Come with me, I want to show you something." He took me over to a line of wallflowers and introduced me to a shy little girl. I screamed and ran. I realize now I may have ruined that shy little girl's life. I only wish I could appear with her on a talk show today and apologize. "It was me. Not you." Years later, at the age of 20 while I was studying Chinese in the Navy, I decided that I could solve my problem by learning to dance. Twice a week for a whole year I went from Boulder into Denver to take dancing lessons at Arthur Murray's. I learned how to dance but it didn't solve my problem. You've got to be able to *talk* in order to get a date to go dancing.

My teen years may not have been the proverbial 'best years of your life', but they gave me something every bit as big as the two instant worldviews of my childhood. It just came as a slow crawl over a period of years. Let me tell you about it.

Can you remember opening your eyes one day and saying, “Hey look, I can see colors”? Not likely. We find out we have color vision only by meeting somebody who’s colorblind. Well, I didn’t know I was comparatively ‘word free’ until I met somebody who was comparatively ‘word bound’. Here’s an early example. It arose from this common ‘puzzle’.

If a tree falls in the forest and nobody hears it, does it make a sound?

I was surprised that this had been posed as a puzzle. My first worldview gave the obvious answer. But then I was already beginning to realize that not everybody shared this view. They had all learned about night and day but they hadn’t all made the generalization. I had to explain, “You see, there’s the way we *hear* things and the way things *are*, and we can use the same word for both the perception and the reality. If ‘sound’ refers to the *perception* (vibrations in the ears), then with nobody listening there’s no sound. If it refers to the *reality* (vibrations in the air), then there’s a sound with or without listeners.” I was prepared for the fact that some people wouldn’t understand my difference between perceptions and reality, but I wasn’t prepared for this next question. “Well then which is the *correct* meaning of the word ‘sound’?” My jaw dropped. “Huh? *Correct* meaning?”

Stuart Chase called it ‘The Tyranny of Words’. But with me, this idea soon grew far beyond what he had in mind. And it continued to grow throughout my life: a slow crawl out of word domination. And all this time it was the word-bound people all around me who kept me aware of what I was crawling *from*. “The *divinity* is *rightly* so called.” Huh? “If something exists it must have a creator.” Huh? “I think, therefore I am.” Huh? “Is there *life* out there?” Huh? And so it went— all day, every day. Couldn’t they see the difference between words and reality?

Chapter 2 - The Three Veils: Age 3-20

I found three veils between me and reality. More accurately, I found that I wasn't seeing reality at all. I was seeing veils. I peeked. And what I saw blew my mind. *Behind each veil was a whole new world.* By way of illustration look at the comparisons below. The veils are shown below by numbers enclosed in diagonals. To the left of each veil is the distortion we all see. To the right is the real thing.

Veil 1. Perception: Seeing is believing	/1/ Reality
Veil 2. Faith: I believe!	/2/ It ain't necessarily so!
Veil 3. Language: Words	/3/ Experiences

Understanding how these veils were deceiving me was the thing that came to drive my life. Without this understanding, I was pretty much like everyone else. With it, I was me. Perception, faith, and language: those powerful forces that control human life. But it's the distortions to the left of each veil that's controlling human life. Not the reality to the right.

Veil 1: Perception

Since I was a loner and rarely talked shop with colleagues, or *wrote* shop for journals, I wasn't really prepared for the extent of my isolation. Here's the first incident that made me take notice. I had been pretty much on my own in Thailand for ten years: thinking—not talking or writing. Then one day I got an invitation to contribute an article to America's leading linguistic journal in honor of one of my old professors. I had never really thought of publishing but I was full of ideas. Surely I could dash off something from the top of my head. Something like my theory of phonemics. It only took me a few days. It was a good article. Short (just seven pages), simple (a child could understand it), but revolutionary. I was very proud. *It was rejected!*

Over the following years I showed the article to the occasional colleague who happened to be passing through. "Is this so hard to understand?" Most answers were something like this. "Just the opposite. It's too simple-minded. Not worthy of a scholarly journal. Anyway, what's it got to do with phonemics?"

Veil 2: Faith

I was darned if I was going to be taken in by my fortuitous upbringing. I mean ideas about reality. Compare Darwin, my mother, and my father. Darwin's theory of evolution was exciting. Mom's acceptance of the creation theory (I believe!) was sweet. But Dad's attempt to *prove* the creation theory was something else. Where Darwin had evidence looking for an answer (deductive reasoning), Dad had an answer looking for evidence (selective reasoning). Darwin's way made me tingle. Dad's way made me mad. This was true when I was a little kid (I was darned if I was going to say I wanted to be a cowboy), and it's true today.

I had to get rid of the baggage. First, religion. Next came patriotism. Don't get me wrong. I wasn't *disloyal*—I was *unpatriotic*. I have great loyalty to my groups: my family, my friends, my high school, all of my universities, my place of work, my country, and the Utah Jazz. But I don't necessarily think of them as being *right*.

After God and country, the next big thing to go was *species*. Stephen Hawking came right out and said it: "It seems better to cut out all the features of the theory that cannot be observed." He wasn't

interested in the universe as it is. He was only interested in how it strums *human* sensors. He may not be *egocentric* or *ethnocentric*. But he certainly is *anthropocentric*. Sure I feel there's something special about my species but I try not to let this affect my view of reality.

Veil 3: Language

The semanticists of the 1930's (like Stuart Chase, mentioned earlier) flourished precisely during the years my semantic awareness was developing. I cheered. But I was already beyond them. They talked mainly about words. I was concerned with language in general. Things like *loaded categories*, *abstractions*, *ghosts*, *voice* (active or passive), *causatives*, and so on. Sometimes language seemed more like a mischievous devil than a veil. Of the many different parts of language that got in my way, I'll discuss three below: *words*, *loaded categories*, and *ghosts*.

1. Words

My first indication of trouble caused by words came through cases of 'I saw, he saw' (I was seeing things one way and someone else was seeing things another way). For example, he and I had both heard that the Mississippi-Missouri was America's longest river. He said this was cheating. The Mississippi-Missouri is obviously *two* rivers. I saw a stream of water running from Montana to the Gulf. He saw words.

Years later I saw what Humpty Dumpty had to say about words. Alice had objected to his strange use of a word, and he said that he used words to mean exactly what he chose them to mean. Alice questioned his right to do this, and he replied, "The question is which is to be master (the word or the speaker)—that's all." I loved it.

Veil 1 (perception) wasn't all that hard to talk about—even though others weren't aware of it. Most people can see the difference between the 'night and day' of the heavens and the 'night and day' of lamp and orange. They just don't generalize this to everything else—like I did. *Veil 2* (faith) was even easier. Everyone knows that most people keep the religion they were raised in, and other such beliefs. They just don't fight it—like I did.

But veil 3 (language) was something else. It would appear that some people aren't even aware of the difference between the mental *flashing* of a memory and the verbal *telling* of it. They claim they *think in words*. I can only speak for myself. When I recall this morning's breakfast, for example, a moving picture pops up. I can watch it repeatedly from different angles—all without a word. It's very clear—even detailed. Then I start to tell you about it and it all goes downhill. "You had to have been there." The words don't sharpen the view—they muddy it.

2. Loaded Categories

When words get in the way of clear thinking, those of us who think with pictures can get around them. But when a *category* gets in the way, we're sometimes trapped. Let me try to clarify what I mean by 'category'. When we say that a 'word' has a 'meaning', the 'word' consists of a single unit that we can write down and point to. But the 'meaning' consists of an endless number of things, feelings, happenings, and so on, that can come under the umbrella of the same word. My use of 'category' here is like that umbrella.

Here's an example. Take the words 'homosexual' and 'heterosexual'. The words appear to be similar and the difference in meaning at first appears to be quite clear. But let's compare their

umbrellas. When we see a husband kiss his wife at the airport, for example, we don't say he's flaunting his sexuality.

Even people who are trying their best to be impartial are taken in by the umbrellas. The language won't let them be fair. If you think this doesn't apply to you, check your reaction to the following piece. It's from the Bangkok Post in a column called 'Nite Owl' by Bernard Trink.

Are you a heterosexual?

1. What do you think caused your heterosexuality?
2. When and how did you first decide that you were a heterosexual?
3. Is it possible that your heterosexuality is just a phase you may grow out of?
4. Is it possible that your heterosexuality stems from a neurotic fear of the same sex?
5. If you've never slept with a person of the same sex, is it possible that all you need is to try it?
6. To whom have you disclosed your heterosexual tendencies? How did they react?
7. Why do you heterosexuals feel compelled to seduce others into your life style?
8. Why do you insist on flaunting your heterosexuality? Can't you just be what you are and keep it quiet?
9. Would you want your children to be heterosexual knowing the problems they would face?
10. Since a disproportionate majority of child molesters are heterosexual, do you consider it safe to expose your children to heterosexual teachers?
11. With all the social support marriage receives, the divorce rate is spiraling. Why are there so few stable relationships among heterosexuals?
12. Why do heterosexuals place so much emphasis on sex?
13. Considering the menace of overpopulation, how could the human race survive if everyone were heterosexual like you?
14. How can you become a whole person if you limit yourself to exclusive heterosexuality?
15. There seem to be very few happy heterosexuals. Techniques have been developed that might enable you to change if you really want to. Have you considered trying aversion therapy or bible study?

Here's another example of loaded categories. Compare the names of different races. Most of my friends are American men with Thai wives, and their children are all half-and-half. I know some people who are half American Indian and some that are one-eighth or one-sixteenth. There are mixed races all around the world and the people are described as part this and part that. All except American Negroes. Why aren't there any part Blacks? Just look at the Afro-American umbrella. No matter what word you use to call it, the word doesn't refer to the Negro race. It means 'any detectable part Negro race.' And what kinds of things are defined by 'any part'—no matter how small the part? Contaminated things, for one. Royal blood, for another. The category just *has* to be loaded—the *category*, mind you, not the *word*. Here's a quote from an article I wrote in 1970.

It's impossible, now,
to describe without disparaging
with terms like 'Negro' and 'Black'.
Our language won't let us.

When 'black' can refer to a light tan skin,
it's surely not 'black', the color.
And a 'black' that can mean three-fourths European
is clearly not 'black', the race.
It's 'black', the *contaminant*.

For those of us who don't want to disparage,

it's embarrassing to use it.
And yet it's even worse when we try to avoid it,
since that might imply
we're ashamed for the race or the color,
instead of the implied contamination.
But the language gives us no alternative.

3. Ghosts

Compare what my father said about night and day with his ideas on creation. We couldn't see the movement of the earth any more than we could see the creation of the animals. How can we think about things we can't see—things like *the earth spinning* and *God creating animals*? We do it with models. For *the earth spinning*, the model for the earth was an orange, and a spinning orange is real. Even at age 5 I could see the orange spin right in front of my eyes. But *God creating animals* is another matter. We can model 'God' as a person, but we can't see a person creating animals right in front of our eyes. We've used *words* for both models, but the words 'orange spinning' refer to substance while the words 'God creating' don't. Words with substanceless meaning are ghosts. And the jump from substance to ghosts is vast.

But science has got a long way to go. Here're a few of the thousands of ghosts that are blocking science. *Physics*: matter, energy, gravity, electricity, magnetism, the nuclear force. *Psychology*: mind, consciousness, thinking, memory, learning. *Linguistics*: phonemes, words, sentences, grammar. In daily life we can say 'seeing is believing'. But in science, it's precisely what we can see that's not real; (the colors, weights, and melting points of silver and gold, for example); and it's precisely what's real that we can't see (the different numbers and arrangements of their protons, neutrons, and electrons).

I've been writing about things that get in the way of clear thinking. I called them 'veils' to focus attention on the way they serve to hide or distort the true picture. Now I'll call them 'shackles' to emphasize the idea of constraint—even bondage. By the age of 20, I felt that I had rid myself of veils and shackles. But 40 years later I found out that while I had been seeing shackles on everyone else, I had been blind to my own. I had been so tightly shackled all this time I couldn't think straight—and I didn't know it. You see there was a fourth veil. And it led to my biggest folly. When I finally became aware of it, I felt like an evangelist caught with a prostitute.

Chapter 3 - The Professional Student: Age 20-37

University of Colorado: Dec 44 – Jun 46

After high school and one year of college, I joined the Navy. They called it the Navy V-12 program. In my case it consisted of 3 semesters of free-choice college followed by Midshipman School. The assignment I chose after getting my commission in the navy was to study Mandarin Chinese, and I mark this as the start of my 54 years in the field of language study.

We had been selected on the basis of our college grades so we had a dormitory full of straight-A naval officers. The purpose was to teach us all to read, write, speak, and understand the language we had been assigned. They didn't know how to do this then. In fact they still don't know how to do it today. But it seemed clear to them that for Chinese and Japanese it meant memorizing thousands of characters. The schedule was 4 hours of class a day and 9 hours of outside study. Chow lines consisted of long lines of flashers – flash cards, that is. I thought of 4-year-old Leo speaking Spanish while 20-year-old Zina was having difficulties, and I recalled my own realization at that time that I too had learned to speak a language. Then I thought of my 'memorize, memorize, memorize, test' days studying Latin in high school and German in college. But what about Chinese? This was for *real* (like my native English), not for *grades* (like my memorized Latin and German). I didn't flash cards with the rest of them, but I did memorize. I didn't know what else to do. Then one day, about four months into the Chinese course, something happened.

The teacher was late for class. It was a nice April day in that beautiful setting at the foot of the famous Flatirons and we all went outside to look for her. After a while she came wobbling up on a bicycle. She had never ridden a bicycle before and was very unsteady. When she got in front of us she didn't know how to stop and get off. She fell. Flat on her back with her legs up in the air and 10 U.S. Naval Ensigns smiling down at her. With an embarrassed giggle, a red face, and her hands extended to shield our smiling attention, she cried out in Chinese "Don't look at me!"

For four months I had been memorizing Chinese characters and sentences like 'This is a book', but this was my first bit of *real* Chinese. To this day, 54 years later, I can still see her lying on her back with her legs immodestly exposed, and I can still clearly hear the Chinese for 'Don't look at me!' echoing in my head. At the time it brought back the glow I had experienced with my father's orange and lamp. I'm looking at *the way things appear* ('This is a book', from class, and 'Don't look at me,' from life), and I'm wondering about *the way things are* (what's happening inside my head that could account for the 'plod' of the former and the 'flow' of the latter).

All day I kept thinking of this experience. In the period of a few seconds something had happened in front of me, sights and sounds had flooded into my eyes and ears, and something had clicked in my head that resulted in a new kind of 'knowing' or 'having' or 'being'. I want to avoid using the word 'learning'—it was nothing like things 'learned' in class. I didn't 'think' it—it 'flashed' and it 'echoed'. It was like a cascade of light and sound waves rushing in and washing over nerves in my eyes and ears and then cascading on into my head to sculpture a device that could echo back similar waves on demand. A mechanism that could repluck the same nerves that had formed it.

That night I made some calculations. The bicycle episode had taken less than 30 seconds. At this rate we could experience 800 such cascades a day. That's 4,000 a week, 200,000 a year, and 300,000 for 18 months. Whatever it was that lay behind this magic, it was obviously a better way to acquire a language than writing 'this is a book' over and over. I really felt that this single *cascade* was worth as much as the previous 4-month period of *study*. If a 30-second cascade equals

4 months of study, just think of 300,000 *cascades*! Why do they force us to memorize things in order to pass a test? Why don't they just 'drench' us with happenings and let us absorb Chinese?

I wallowed on for 15 more months. Did it work? Well, we did learn to read and write 3,000 Chinese characters. What about speaking and understanding? It would be a stretch to even use those two words. Let's call it 'struggling'. Was anybody disappointed? Not in the least. After all, we had all gotten passing grades, we knew all those characters, and we had never seen anyone do any better. *Isn't that what successful learning is all about?*

One day we were assigned to take some visiting Chinese Generals out for a night on the town. I was elected to do the talking. After all, I had averaged 97% on 18 months of weekly tests. I got about 10% on this one. Was anybody disappointed? Not really. When they told us our goal was speaking and understanding, they were thinking of what happens in school language learning everywhere.

University of Utah: 1946-48

After getting 4 years of free college in the Navy, I was rewarded with 5 years of free college on the GI Bill. Then I found that I could get half again as much by taking 24 class hours at a time instead of 16. What a way to make a living! I went back to the University of Utah and took whatever classes interested me: mostly math, science, psychology, and languages (French, Spanish, and Italian). But this time, unlike my misfit days, I was using college for a lot more than study. I finally found an entrance to social cascades. I joined a fraternity. This is what I had needed all along. I learned how to talk to girls and thus enter the other half of the world.

University of California: 1948-51

After 2 postwar years at the University of Utah they told me I would have to take a degree but I didn't want a degree. I wanted to cash in my GI Bill on as many interesting courses as I could get. The only way I could see to keep doing this was to transfer to another university. As I browsed through the catalogue for Oriental Languages at Cal I found that they offered degrees in Chinese, Japanese, and Oriental Linguistics. I never knew there was such a field as 'linguistics', but I sensed immediately that this was what I had been looking for all along.

The Army and Navy each had their own language program during the war, and neither one knew how to teach languages like Chinese and Thai. The Navy used makeshift; the Army turned to the linguists. With J. Milton Cowan in charge, the Army dealt out languages like cards to the available linguists. "Here's a language and a native speaker: analyze the language, write a textbook, and teach it. Charles Hockett, take Chinese; Bernard Bloch, take Japanese; Mary Haas, take Thai." And so on. It came to be called the 'Army Method', and each book was called 'Spoken Whatever'. After the war, Dr. Cowan and many of these linguists went to Cornell, which became the most enlightened center for language study in the U.S. But Mary Haas wanted to stay at Cal, where she had been teaching Thai in the Army, and that's where I discovered both linguistics and Thai.

By this time I had studied 8 languages using the same old 'grammar translation' method (memorize words and grammar rules, translate sentences back and forth, and pass tests). But Thai under Mary Haas was something else. It was mostly practice. Mary told me that all I had to do to master a language was to practice until I got near-perfect pronunciation and then immerse myself in the country for a year. And so I practiced.

I took a bachelors degree in Oriental Linguistics in one year and a masters in two more. That finished off my GI Bill. The GI Bill had been designed to help people whose education had been interrupted by the war. After working my way through my first year of college, I got the next 9 years free: 4 years in the Navy and 5 years on the GI Bill. But what now? I easily got a scholarship to go on for a Ph.D. at Cal. But after just 2 days of this scholarship Mary Haas got a telegram that was to change my life.

Cornell University: 1951-53

The telegram was from J. Milton Cowan, head of the Division of Modern Languages at Cornell. He had been planning a course in Thai, and William Gedney was supposed to return from Thailand to teach it. (Gedney was the only American linguist other than Mary Haas who knew Thai, and Cornell was to become the only American university other than Cal to teach it.) But at the last minute Gedney was detained and Cornell was stuck. Cowan asked Mary, and Mary asked me. I left the next day for Cornell as the head of the Department of Thai, Burmese, and Vietnamese.

Actually, what this grand position boiled down to was teaching two students in Thai 101 and one in Thai 102, as I continued my work on a Ph.D. in linguistics. But never mind. Cornell had the best linguistics department in the United States and the only Center for Southeast Asian Studies. And there I was at their point of intersection. I had an office next to some of the biggest names in the field, and I had weekly staff luncheons with them. I had suddenly been transplanted into a linguist's paradise.

Bangkok: 1953-57

The Southeast Asia Program at Cornell was the main center in the country for sending out Ph.D. candidates to do doctoral research in the country of their specialty: Indonesia, Vietnam, Burma, or Thailand. To do this research, the candidates needed to learn the language of their country, and that's where I came in. I was teaching Thai to the future professors of Thai Anthropology, Thai History, Thai Economics, and the like. But after all, I was a Ph.D. candidate myself, and I had my own research to do in Thai Linguistics.

I easily got a one-year grant, which I managed to extend every year for a total of 4 years! Now what was my own language preparation? I had studied Thai for 2 years at Cal at 3 hours a week and 2 years at Cornell at 6 hours a week. (The Cornell method was to have an American linguist teamed up with a native speaker, so two years of my 'teaching' was also like two years of my studying.) So when I arrived in Thailand I had been through almost 500 hours of classroom study by the Army Method. I could make near-perfect sounds once I had assembled a sentence for delivery, but I couldn't even begin to 'carry on a conversation'.

I was still playing the role of guinea pig for the Army Method and was ready for my year of immersion. I dutifully moved in with a Thai family and didn't hear a word of English for my first year. In actual fact I spent the biggest part of my '24-hour-a-day immersion' as a 28 year-old alone in my room—sleeping, reading, and practicing with my tape recorder. I had meals with the family and occasional weekend trips with university students.

So where had I gotten to at the end of my guinea-pig year? My pronunciation was excellent but my speaking was labored. I was *plodding*, but I was doing it *clearly*. I thought I had proved it (the Army Method) *right*. The process at work here is the thing that conceals the failure of language study everywhere. As long as we're getting temporary rewards (like my perfect pronunciation), goals automatically come down to meet actual progress.

After this year in family, I shared a house with my first student of Thai at Cornell. Bob was doing research for a Ph.D. in anthropology and had come to Thailand a year before me. His experience with Thai was 1 year study plus 2 years in Thailand, compared to my 4 years study plus 1 year in Thailand. A few months later we were joined by Don, a young American who had come to teach English at Chula. Don didn't know any Thai and he kept turning down my offers to teach him. I had a Thai girlfriend named Pu who came by every evening and we had a 40-year-old live-in servant named Som. Bob spent most of the day at his desk interviewing *samlor* drivers ('samlor' means 'three-wheeler'). Like me and all of my students, his Thai was plodding. Luan (a Chula student) helped me as a linguistic informant whenever he was free from school.

A typical day saw Bob plodding at his desk with his *samlor* drivers, and me plodding at mine with Luan. Som was doing her housecleaning, laundry, and cooking. Things got more interesting when Peter got home from Chula. He, Pu, and I would be having beer and cockles in the *sala*. Peter was very playful and prone to tease, while Pu was very teaseable. Peter would spend a lot of time doing things like chasing Pu from *sala* to house, upstairs and down, trying to hit her backside with a ruler. Pu would be giggling and screaming playful oaths at Peter as she ran away from him. Bob would be going crazy at his desk. After a year of this, Bob had to ask Peter to move out. I decided to leave with Peter and we found a new house and lived together as a foursome (Peter having acquired a girlfriend). The playful situations continued for 2 more years.

Now all of this is merely the background setting for what I'm really getting at: the language learning that was taking place. I had taught Bob to plod at Cornell and he had been plodding in Thailand for over 2 years. I offered to teach Don to plod but he declined. I didn't consider for a minute teaching Peter to plod, but he picked Thai up fast. After a year Peter's Thai was more fluent than Bob's and after 3 years it was as good as mine. In other words, Peter had gotten a lot more than I had from the same 3 years of exposure. Why? It took me 12 more years to even make a guess and 30 years to find the answer.

Cornell: 1957-58

As different as the Thailand of 1953 was, I was mentally prepared and didn't feel any big shock. But returning to the U.S. was another matter. Not only had I been in Thailand for 4 years but I had 'gone native', and I wasn't prepared for the return. Since I'd been gone from Cornell for 4 years, they had found someone else to take my place. But they could still use me since Thai classes had expanded and they had added Burmese. I taught Burmese (in effect, studied it) as well as Thai, and I was caught up again in the flurry of linguistic ideas—this time contributing my own new ideas that had come from my 4 years of thinking. But 11 months of cross-fertilization (not to mention my fear of the U.S.) was enough and I was ready for more lone thinking in Thailand. By the end of the school year I had grabbed up a Fulbright fellowship and was on my way back to Bangkok.

Bangkok: 1958-1960

I was assigned to the College of Education in Bangkok as a consultant to the Thai head of the English Department. This was the first time I had been directly involved with English teaching in Thailand and it was quite an experience. Almost all students of English in Thailand study their English from Thai teachers who pronounce English words completely with Thai sounds.

Now when I taught English, the students were willing to accept my funny pronunciation; they expected a funny foreigner to make funny sounds. But they sure weren't willing to *imitate* my funny sounds and thereby invite social ostracization. They simply replaced the 'funny' (me) with the 'normal' (Thai). But what about grammar? Surely I could make a real breakthrough there. I

reduced the use of the perfect tense to an algorithm. Then I gave them a test. It seemed foolproof. In fact it was a disaster. After going through a feeling of “What am I supposed to do with stupid students who can’t even use a foolproof algorithm?”, I accepted the fact that something might possibly be wrong with my method of teaching. But I didn’t know what. I was still 25 years away from finding the reason for the massive failure called ‘study’ that we were all participating in.

Cornell: September 1960 - January 1962

I returned to Cornell to teach Thai and Burmese and finish off my dissertation. I had been hired for the 1960-61 school year as a ‘teaching fellow’. Before the year was up I was close to finishing my Ph.D. and they offered me the position of assistant professor (the first step on the tenure track to full professor). It was time for me to make the most important decision of my life. On the one hand, I could take the position at Cornell—a position at the very top of my field in both Linguistics and Southeast Asian Studies. On the other hand, I could try to support myself for 6 months while I finished off my dissertation, find \$600 for a one-way ticket to Thailand, and arrive in Bangkok with no job or money.

Chapter 4 - The Linguist: Age 37-55

I arrived in Bangkok in March of 1962—broke, in debt, and without a job. I didn't need any money on arrival. I moved in with Peter and Joke (still living next door to my old house). For a job, I went to the Thai-American Bi-national Center, which was known locally as the AUA Language Center, or simply AUA. AUA was Thailand's biggest school for teaching English to Thais.

The American director at that time was an old friend of mine, Gordon Schmader. He hired me as 'Staff Linguist': a perfect title for a perfect job. As staff linguist, I was like an 'elder statesman' at the age of 37 (long on ideas and influence and short on responsibilities). So in 1962 I finally started the job that was to be my life's work. This work was concerned with the teaching of both English to Thais and Thai to foreigners, and it took place at Thailand's biggest and most prestigious language school.

My Work

As I said earlier, I started from the Army method as practiced at Cornell. They called it 'mim-mem', for 'mimicry and memorization'. As I used the method myself in the study of Thai, I found that both the 'mim' and the 'mem' became simply 'practice'. I practiced words to the point of perfect *mim* and I practiced sentences and dialogs to the point of perfect *mem*. So when I started my work at AUA, 'mim-mem' had become 'practice to perfection'. Now given the fact that I believed in practice, what should I have done when it didn't work -- when it didn't get to perfection? The answer seemed clear. More practice. What if it still didn't work? Better practice. More and more. Better and better. But what if the idea of practice itself was wrong? What if a language gets into our head by a completely different means? How many failures would it take before I would abandon practice altogether and look for some other way?

Much has been said about sticking with something that doesn't work. Barbara Tuchman wrote a whole book about it: **The March of Folly**. She was concerned specifically with government policies that didn't work. And she further limited what she meant by 'folly' to policies that met these three criteria. 1) It was perceived as counter-productive in its own time. 2) A feasible course of action was available. And 3) the policy was that of a group—not just an individual. Still, she managed to fill a whole book with unbelievable cases of follies that self-destructed.

Bernard Trink calls it 'riding a dead horse' in his column 'Nite Owl' in the Bangkok Post of 12 March 99.

Lakota tribal wisdom says that when you discover you are riding a dead horse, the best strategy is to dismount. However, in business (and education and government) we often try other strategies with dead horses.

Among them are buying a stronger whip; changing riders; saying things like "This is the way we always have ridden this horse", appointing a committee to study the horse; arranging to visit other sites to see how they ride dead horses.

Increasing the standards to ride dead horses; appointing a team to revive the dead horse; creating a training session to increase our riding ability; comparing the state of dead horses in today's environment; change the requirements, declaring that "This horse is not dead".

Hire contractors to ride the dead horse; harnessing several dead horses together for increased speed; declaring that "No horse is too dead to beat"; providing additional funding to increase the horse's performance; do a study to see if contractors can ride it cheaper.

Buying a product to make dead horses run faster; declaring that the horse is "better, faster and cheaper" dead; forming a quality circle to find uses for dead horses; revisiting the performance requirements for

horses; saying this horse was procured with cost as an independent variable; promoting the dead horse to a supervisory position.

As you read about my work over these 18 years, you'll see that I was riding a dead horse and you might find my folly amusing. Or, knowing that I didn't know it was folly, you might even admire my determination. But laugh, pity, or admire, I hope that my folly can help us toward our goal.

English Textbook Preparation

The English terms lasted 6 weeks each (30 hours of class). My basic method was to write a 30-hour book, teach two classes of it every day for a term, and then rewrite things that didn't work. Then on to the next book, and so on term after term. The trouble was that nothing ever really *worked*. I mean I couldn't give a drill practicing the r/l distinction and expect that the students could now consistently hear and produce the distinction without trying. I had to review it later. It still didn't work, and I had to keep reviewing it: twice, three times, ten times. I was trying to do something I'd never seen anybody try to do before. I was trying to get results in real language use. Most textbooks would just plan to *cover* the r/l distinction. Many textbooks practiced something until the students could *pass a test* on it. What was *my* goal? Not just *cover*. Not just *pass a test*. (I could easily have gotten success by testing.) *But get it right without thinking*. Isn't that what we do with our native language? *Right without thinking*? So what was I to do when something didn't work? What did Barbara Tuchman's clowns and jesters do in their **March of Folly**? They did more of the wrong thing. That's what I did. More. And more. And more. I could call this section 'Confessions of a Mad Structuralist'.

The first year at AUA I simply wrote material blind (using the methods I had used at Cornell while doing 'Spoken English for Thais). But during my second year I got a real education in the problems of teaching English to Thais. One of AUA's functions was to teach English to students who were going on government grants to study for an MA in the States. The first step was to give them a 6-week term in English at 6 hours a day. Then we had to decide whether they were ready for a university in the States. (Notice that we had reduced the goal from 'work' to 'get by'.) Fellow staff linguist Ted Plaister was better at deciding this than anybody, and the two of us together formed a formidable team to interview these students and decide. We couldn't trust anyone else. The whole future life of these students was in our hands. If the two of us decided a student wasn't ready, he had to take another term and interview again. And if necessary, again. We interviewed hundreds of MA candidates. And here's what we found. Those who had studied at any of the elite schools that had native speaking English teachers from first grade almost always passed. All others almost always failed—no matter how many terms they took at AUA. In other words, our teaching was of little help. And my job became clear. I had to produce material that worked—or shut up.

I devised drills for language problems. They didn't work. I reviewed them. They still didn't work. I reviewed them again, and again. Nobody will ever know how far this elaborate structuring of gradual steps went. I had dedicated my life to 'practice' and I felt I had to make it work. One day a student was doing the following substitution drill item.

Teacher: *It's in the bookcase.* (icebox). Student: *It's in the icebox.*

Now the sentence 'It's in the icebox' was purposely packed full of difficult sounds for a Thai—and the drill was more of a pronunciation drill than a grammar drill. You will rarely find a Thai who can pronounce this sentence perfectly. And yet the student's pronunciation was flawless. How satisfying. But then the student asked: "Teacher. Wat mean eye bock?" (Of course he was trying

to say “What does ‘icebox’ mean?”) Perfect pronunciation while *drilling* had had no effect on *speaking*.

Soon after I had finished Book 6, I left the English department and put all of my time on teaching Thai. My reason for giving up on English wasn’t that I had become convinced that practice was the wrong way to go. I was still 13 years away from believing this. I blamed my failure, rather, on the fact that peer pressure forced Thais to speak English with Thai sounds. Students who tried to sound like a foreigner were socially ostracized: “Just say the words; leave the funny accent to the funny foreigners.” Furthermore, it was precisely these disallowed sounds that carried most of English grammar. I couldn’t fight this. All I could do was to wait for these socio-linguistic forces to gradually change (as they largely did over the next 20 years).

Thai Textbook Preparation

I was firmly convinced that the secret of success for applying my method to Thai was *tones*. My four years of teaching Thai at Cornell had clearly shown that students who got the tones right did much much better than those who didn’t. Every lesson of my first 3 books had a section on *hearing* tones (tone identification), one on *making* tones (tone production), and one on *using* tones (tone manipulation). It didn’t work.

My Play

For eight years I led two completely different lives. The professional language teacher by day and the professional bachelor by night. I loved both lives and pursued them with complete freedom and dedication. As with my work, I’ll discuss my play only as it has to do with language learning. This will serve to bring into focus the comparisons that I missed completely at the time. The units of language learning in my work were teachers, books, classes and courses. The comparable units in my play were *cascades*.

Peter’s Cascade

I’ve already told you about Peter’s learning of Thai in 1955. There was Bob, plodding—just like I taught him to. And there was Peter, passing Bob up in a year. With these two examples staring me in the face, I repeated my offer to teach Don Thai. The ghost ‘teach’ had me trapped. What would have happened if I had used the expression ‘provide for’ instead of ‘teach’? I had provided for Bob to get Thai at Cornell. I had provided for Peter to get Thai at our house. I couldn’t have duplicated the Peter cascade for Don, of course, but I could at least have taken note. “Hey, Peter learned much faster and better than Bob did. There must be a message there somewhere.” Remember my glimpse after the bicycle incident in 1945? Two steps were needed: I had to *see* it and I had to *act* on it. In 1945, I saw but wasn’t able to act. This time I didn’t even see. And this time *it was my business*. Shame on me! I encountered many more cascades over the next 25 years—some of them much clearer than Peter’s. But, like the whole world, I kept missing the secret. *Zambi’s second rule*.

The Typical Adult Cascade

Some time after I arrived in Bangkok in 1953 I ran into a few old Bangkok hands who had been there forever. None of them had ever studied Thai—it wasn’t available then. They had picked it up by cascades. It was terrible. I knew of only three foreigners who spoke clear Thai in those days: Mary Haas, Bill Gedney and me. And we had all gotten there through study. As the years went by

I saw more and more people like Mary, Bill, and me, and more and more people like those old Bangkok hands. The message seemed clear. Study works better than picking up.

Joke's Cascade

Joke's cascade was much slower but eventually much better. It started in 1958 when I was in Thailand on my Fulbright Fellowship. Peter and Joke had just set up housekeeping and I lived with them for a month while I looked for a house close to the College of Education, where I worked. So Joke's cascade covered a period of 3 years altogether. In addition to Peter, Joke, and me, there were 5 other Thais: the gardener with his wife (our housekeeper) and baby girl, the cook, and a baby sitter (one of Joke's nieces). Peter and Joke's little girl was born a month after my return in 1962.

Peter, Joke, her niece, and I usually played croquet on the front lawn in the evenings. Then Peter and I would have an hour of drinks before dinner. None of the Thais knew any English, so you can pretty well guess the mixture of Thai and English that took place during croquet, drinks, and dinner. Joke was exposed to this mixture every day for 3 years, but she never tried to speak English (Zambi's second rule). Peter and I would usually speak to her in Thai, but whenever we did say something to her in English (which we did with increasing frequency over the years) she would always respond in Thai. They moved to England in 1964. When they returned on a visit in 1967, Joke's English had passed up both Peter's Thai and mine. Anyone could tell that *our* Thai wasn't native, but it wasn't so easy to tell that Joke wasn't born and raised in England. And now, 30 years later, there's only a rare indication that she's not a native Brit.

My Nighttime Cascade

Two hours a night every night for 8 years—mostly just listening. I learned a lot of Thai. Now those who might say that 8 years is a long time to *spend* on language learning are missing the point. I didn't *spend* any time at all—any more than a baby *spends* 6 years in order to learn his native language, or a young man marrying into a Mujambi village *spends* 2 years tagging along on elephant hunts in order to learn Mujambi. And surely Peter didn't *spend* 3 years chasing Pu with a ruler in order to learn Thai, nor did Joke *spend* 3 years playing croquet in order to learn English. All of these people would have been doing all of these things *anyway*. And that's the key. The cascade is *unsolicited*, *undriven*, and the words are *unnoticed*.

Kwan's Cascade

With my marriage in 1970, my nighttime cascades stopped and Kwan's cascade started. Contrary to popular opinion, the cascade between husband and wife is minuscule. When I first met Kwan, she had never studied English and had never been exposed to it (a rarity in Bangkok). After about a year of speaking only Thai to her, I started inserting an occasional English word in Thai sentences (very common things like 'newspaper', 'coffee', and 'take a bath'). Imperceptibly I increased the number of words over the years, but she never tried to say anything in English (Zambi's second rule).

Six years later I took her to the States on a visit. After a week at my sister's place in Salt Lake I went to the Summer Linguistic Institute in Hawaii for 6 weeks and left her alone with my sister and her two sons. She could understand a little of what they said to her, but she had never tried to speak English at all before this and I'm sure communication wasn't easy. *But they got along famously.*

A few months after we returned to Thailand we moved into a compound where an Anglo-Burmese family was living. Anglo-Burmese English was their native language. Their Burmese was non-

native and their Thai was minimal. Kwan became close friends with the old Auntie and they talked a lot. Two years later I left my job at AUA and we went to live in the States with my sister. Kwan's English had improved quite a bit during her 2 years with Auntie, but talking with my sister and nephews was still a struggle.

In the meantime I had gone from speaking to her in Thai with the easy words in English to speaking in English with the hard words in Thai. She still spoke only Thai to me. We lived there for four years and I would estimate that her ratio of hearing English to speaking it during this time was about 10 to 1.

Now here's the moral to Kwan's story. Unlike almost all the Thai people I know, her English doesn't sound Thai. It sounds American. Her two closest Thai friends have lived here in the States for over 25 years and their English is nothing like hers. Joke's English sounds British, Kwan's English sounds American, and the English of all the rest sounds Thai.

Servants and Bargirls

Most Thais learn their English by studying it in school. Joke and Kwan learned theirs from cascades of a rather rare kind. I'll compare servants in an English-speaking household with bar girls in a bar for foreigners. Notice this. The main job of servants is to *listen*. The main job of bargirls is to *talk*. Long before I had ever thought about teaching by cascades I had come up with this formula in my classes: 'pronunciation index' = 'percentage of language heard' divided by 'percentage of language spoken'. Servants might say one word for every 100 they hear, for a pronunciation index of 100. Bargirls might say 100 words for every 100 they hear, for an index of 1. And sure enough, it's quite obvious that servants have far better pronunciation than bar girls.

I observed all of these cascades without understanding the forces involved. I didn't know why Joke did better than Kwan, who did better than Peter, who did better than me, who did better than the old Bangkok hands I had known. I understand these forces now. The preface says it all in a single phrase: *tagging along in a cascade of everyday happenings without trying to say anything for nearly a year*. This phrase contains Zambi's two rules. The first rule is 'tagging along'. The second rule is 'without talking'.

But what were the long-term goals of the guinea pig? I had set out to prove that the Army method could produce perfect speakers. *Then*, I thought I had proved the method right. *Now*, I can see that I had proved it wrong. The difference is hiding in the word 'speak'. *Then*, I was thinking of 'delivery' (how the speaking comes out). Since my delivery was near perfect, I had proved it right. *Now*, I'm thinking of 'production' (how I get from thought to sentence). Since my production of Thai is very different from my production of English, I must have proved it wrong. Let me put it this way. When I speak Thai, I think in Thai.

At the end of those 18 years it seems that I hadn't learned anything. I was still convinced that the answer was practice, practice, and more practice. Everything in my work kept screaming out "*Teaching and study can't produce real language learning!*" And everything in my play kept screaming out "*You don't do it. It does you!*" The experience was there—but the screams went unnoticed. I was still unaware of the fourth veil.

Chapter 5 - The Second Wind: Age 45-70

The 5 Ideas of the 70's

Race

You'll remember that I mentioned race in the section on 'loaded categories'. I had never really been exposed to America's racial problem. And during all my years in Thailand my only knowledge of what was going on in the States was one newspaper and one newsmagazine. Time called it "... the toughest moral and political dilemma of the postwar era: how to ensure justice for its blacks and tranquility among its races." And I thought, "Blacks? Races?" Max Lerner said, "Let's not kid ourselves. This isn't a political or economic or even moral crisis we are in. It is an intellectual crisis." And I thought, "Perhaps the problem is all in our language." It was at this point that I went on half time at my job, and I ended up taking half of every day for a whole year writing this article. Here's how it started.

Race, Complexion, and Ancestry

I found this entry in a Chinese dictionary.

Chu: 'A horse with a white left hind leg.'

What a strange category to have its own word!

There must be a reason!

Some special implication? Some special need?

Here's another one, closer to home.

American Negro: 'An American with
any detectable amount of black ancestry.'

What a strange category to have its own name.

There must be a reason.

I never did find the reason for 'Chu'.

I'll have to ask some Chinese historian.

But I can guess the reason for 'American Negro':

A cruel, ugly category (not a word) is filling a need!

Whatever we call that strange category,
(be it 'Nigger', 'Colored', 'Negro', or 'Black')
it fabricates a prejudice.

('Nigger' reveals the prejudice, 'Black' hides it;
and more harm is done by the hiding.)

The prejudice, in turn, fills a widespread need.

The point developed in the article was that 'any' (any part black) implies contamination (or royalty!). No other racial mixtures are defined like this. They all speak of *parts*. There must be a reason you can't be part black. But 'any' is only half the problem. The other half is the 'anyway' implied by the remedy. "Even though you're contaminated (by 'any'), you're entitled to your rights ('anyway')." In effect, that's what the 1954 Supreme Court Decision implied. How noble! Notice that the problem in this example lies in *categories*—not *words*. This is much more difficult to fight. In fact, even though I see the problem clearly, I still can't find a way to keep from implying that certain people are contaminated. Our language gives me no way.

Perception

As I looked over old issues of Scientific American I came across a 1963 article on "The Visual Cortex of the Brain" by David Hubel. It grabbed me. For the first time I saw a mental unit that had

substance. A specific perception (like me looking at a kitten in front of me right now) consisted of a specific structure of converging neurons that I likened to a neural tree. This structure existed in space and in time. It had size; it had shape; it had location. In my imagination I could see it take shape, and I could see it work. Compare this with the usual ghosts of the ‘mind’: ‘thoughts’, ‘memories’, ‘consciousness’, and the like. How big is a thought? What’s its shape? What’s it made of? A thought has no substance. And what are things that have no substance? Ghosts.

Hubel’s first view was *inside* the neuron. Different kinds of neurons are turned on by different things. If a neuron’s *thing* is vertical lines, for example, it will buzz like crazy when it sees one. Call it buzz strength 10. If it sees a line slightly off vertical it will buzz 9, and so on down to 0 for a horizontal line—which does absolutely nothing for it. Hubel’s second view was *between* neurons. Each neuron has many lines of input (from different areas in the eye or from other neurons) and each input can be different (one line might carry buzz 5, another buzz 2, and another buzz 1). It adds these inputs together (or combines them in some other way) and sends buzz 8 (or whatever) down to hundreds of different output lines leading to hundreds of different neurons on the next level. (My imagination went wild on the two parenthesized parts of the previous sentence; that is, ‘combines them in some other way’, and ‘whatever this combination may be’.) Hubel’s third view was between levels and between areas. There are several levels of neurons with a maze of crisscrossing connections from level to level.

But wait. Where’s the kitten? On the outside I was looking at a kitten. On the in-side I saw only a maze of connections. Where in that maze was my kitten? I went back to the eye and followed Hubel as he worked his way in. The basic structuring was a convergence of many neurons onto one, and this time I highlighted the path as I went. I’ll refer to levels of neurons as A, B, C, and so on. Many A’s (nerve cells in the eye) converged onto a B. Many of these B’s converged onto a C. And so on until the whole kitten came together. Clearly highlighted in that maze of connections that crossed several different levels was a neural tree. From leaves to branches to trunk. And that neural tree was my kitten. All its characteristics were there. The tilts of its lines were in the leaves of the neural tree. *Tilts* had converged into *shapes* (as the leaves converged onto a twig). *Shapes* had converged with *colors* (as twigs converged onto a branch). And so on until we finally reached the trunk. That trunk was a neuron that connected the whole kitten together. It was the thing that made it possible for the whole tree to light up as a unit. And the totality of what’s connected to what, in any given flash, is precisely what a perception is made of. Because of that final neuron, the neural tree that was my kitten was able to flash as a unit.

Notice where Hubel and I had parted. Hubel went from neurons to connections, to levels and areas. I went from neurons to connections to trees. He saw a massive maze of crisscrossing connections; I saw a massive forest of trees. Before that day I couldn’t see the trees for the forest. But once I saw the trees, look what followed. Each neural tree, once formed (built or grown), stayed right there. Right where it had formed. While I was looking at the kitten, the flashing neural tree was my *perception* of it. When I stopped looking, the same neural tree stopped flashing but it didn’t go away. It was a dark *memory* of the kitten. When I thought of it later, it flashed again—as a *thought*. “*But it’s the same tree, Dummy!*” (I said to myself). “*The perception, the memory, and the thought. They’re all the same damn tree!*” And this tree was no ghost. It was real. How big was it? At least several inches (from eyes to the back of the head). What was its shape? It resembled a tree. What was it made of? Nerve cells. I had made an *intangible* perception, an *intangible* memory, and an *intangible* thought all *tangible*. It felt great. I looked at the house across the street. *Sproing!* Another tree popped up. I looked above at the clouds and the birds. *Sproing!* Neural trees were popping up all over—all day long. Then I started flashing old memories. ‘Breakfast this morning.’ *Click!* The tree lights up and I examine it in detail. ‘Dinner with friends at a restaurant

three months ago.’ *Click!* I can see where the entrance is, who’s sitting where, the waiter bringing the duck—everything. It wasn’t a ghostly memory; it was a physical tree. *The same damn tree* that had been built three months earlier.

I had found the *substance* behind the *ghost*. The ghost was the words: ‘seeing a kitten’ or ‘thinking about seeing the kitten’. The substance behind ‘seeing it’ and ‘thinking about it’ was a neural tree—the same neural tree for both the seeing and the thinking. And that, to me, is what science is all about: *finding the substance behind the ghosts*.

As I look back now I wonder why I didn’t pursue it. “If it made you feel so good why didn’t you run with it? Why didn’t you use it to change your way of teaching and analyzing languages?” And now I know. Blinders. Anyway, there were too many things left unexplained. This had only been step 1. It just floated around in my head making me feel good for 20 more years. Then it happened. In quick succession came several more steps.

The DNA Story

It wasn’t just what the DNA story had to tell me; it was how it started me thinking. There was a progression of excitement. 1) Knowing what a DNA molecule is and how it reproduces itself. 2) Knowing how this molecule directs the production of all other molecules needed to produce a particular plant or animal. 3) Knowing how this whole process came about in the first place; that is, the evolution of these molecules.

Behavior

I was looking in the ‘Letters’ section of **Science** in 1974 and I saw a reference to the book, **Behavior: The Control of Perception** by William Powers. It reminded me of my 1965 article, ‘Phonemics Without Sounds’, which no one had understood. I sent a copy to Powers. He understood, he was impressed, and a correspondence began. He knew the importance of language to his theory and he had been looking for a linguist who could understand him. We clicked. I got a copy of his book and studied it for two years. Then in 1977 I went halfway around the world (Bangkok to Chicago) to talk with him.

You’ve got to start with ‘hearing,’ and you end up with ‘speaking’. But how do you get to ‘speaking’ from ‘hearing’? My answer had always been ‘practice’. But what was the reality behind ‘practice’? After all it was only a ghost. Well Powers was saying that the brain’s role in behavior was like that of a thermostat. The engineers call it a closed feedback loop. You look at what you’ve got (the thermometer), subtract what you want (the thermostat), and the difference activates whatever it takes (furnace or air conditioner) to bring this difference to zero. In other words, it’s the difference between *what you want* and *what you’ve got* that determines *what you do*. And you know what’s controlling what? Do you think it’s the *thermostat* that’s controlling the *furnace*? No. It’s the *furnace* (behavior) that’s controlling the *thermometer* (the perception).

Physics

For me, physics was always an enigma. My feeling for physics had been based on little more than the solar system and the atom. These were both clear cases of *guessing what’s there*. I had generalized these examples to all of science, and I assumed that all physicists had done the same thing. Now I suddenly find out that for almost everything besides solar system and atom, they were all *observing what’s there*. Stephen Hawking later came right out and said it: “It seems better to cut out all the features of the theory that cannot be observed.” He was actually *bragging* about it. I

couldn't stand it! From 1977, I turned my main attention to physics and in 1980 I quit my lifetime job in Thailand and returned to the States to study physics and try to do something about this catastrophe. Imagine it. Physics abandoning the method of science. *My God!*

Here's how I would explain their departure from Copernicus, Galileo, and me. On a scale of 10 for reality, let me give Copernicus and Galileo a grade of 9. Now observe *the fall of physics*.

1, Newton said, concerning the nature of light, 'I make no hypotheses'. And he wasn't apologizing. The reality score dropped to 7.

2. Maxwell used Faraday's models of reality to work out his famous equations about electricity and magnetism. But once he got the equations, he bragged that he no longer needed the models. After going from *guess* to *measure*, he wanted to cover up the guessing. Reality dropped to 5.

3. Einstein appreciated models of reality (note his famous *thought experiments*). But his fame, ironically, came from giving up. When *he* couldn't make sense of the perception of light, he blamed the limitations of the *human brain*. "Let's face it: there are some things it just can't do." This was a terrible blow to the goal of guessing reality. Score it 3.

4. Feynman used his famous two-slit experiment to show that electrons can't be explained as either particles or waves. He said that it's impossible, "*absolutely* impossible, to explain in any classical way." Reality had dropped to 1.

It was in Richard Feynman's **Lectures on Physics** (1963). He tells of an interesting theory of gravity that many people had thought up independently since 1750. It goes like this. Space consists of particles (I'm going to call them 'trinos') moving in all directions at the speed of light. We get hit equally from all sides and thus feel no pressure. Most of these trinos pass right through the earth and right through us—but not all. A few trinos are strained out by the earth and we thus get hit by a few more from above than from below. The excess number of trinos hitting us from above exerts a pressure on us towards the earth. This pressure is gravity.

Now he tells me! Lots of people had thought of it, he says. But nobody told *me*. It seems to have been one of the best kept secrets of physics. Feynman explains why nobody pursued it. "If this theory were true," he says, "the orbiting earth would get hit more from in front than from behind and this would long since have stopped it in its orbit." He admits that it's an exciting theory, *but it can't be true*. "Surely you're joking, Mr. Feynman." You don't judge a new theory with the terms of the old one. You ask the *new* theory why the earth isn't slowed down.

Chapter 6 - The Conversion: Age 55-60

While my own outside thinking was booming, my work was collapsing. Results from our teaching methods were still far from what I had hoped for and I had run out of new ideas. On top of this I had suffered eight straight years of uncooperative bosses from Washington. The collapse of my work was telling me to get out of there. And the boom of my thinking was telling me to go study physics. But what kind of work could I do? The teaching of Thai in the States had dropped from thirteen universities during the Vietnam War down to four—leaving lots of Thai experts out of work. The waiting line was two or three deep at each place that taught it. They were all using my textbooks but that turned out to be a disadvantage. Over-qualified!

What about Chinese? That was being taught almost everywhere. Could I teach Chinese? Well I had a degree in linguistics, I had thirty years of experience teaching a tonal language, and I once knew Chinese. Of course I hadn't spoken a word of Chinese in 35 years, but maybe I could get it back. I gave AUA 6 months notice while I finished writing my last Thai text-book and found a replacement. Then I headed straight for spring quarter at the University of Utah.

I loved it. It was my favorite occupation. I soon finished off math. I took algebra, trig, and calculus 1 in the spring, calculus 2 and 3 in the summer, and differential equations in the fall. I was obviously going to be there a lot longer than a year, and it looked like I would level off at two classes of physics and one of Chinese every quarter.

The extreme structural methods of the linguists had already come under attack by 1964. Wilga Rivers (**The Psychologist and the Language Teacher**) had said that while the linguists' methods might work for linguists, they didn't work for the other 99% of language students. Maybe so. But I couldn't see that she offered anything better. I felt sure that as a linguist I could still get a lot from practicing drills even if most people couldn't. So my return to college life now had three purposes. 1) To feed my appetite for physics. 2) To prepare for a job. And 3) to prove that practice works. This was to take four years instead of one. Here's what happened.

Studying Physics

Most professionals soon build up a defense against cranks—but I suspect that physicists are touchier than most. Just seeing this old guy in their class made some of them suspect a crank. When I walked into their office they stiffened. And when I introduced myself as a linguist, they were sure. “How can I politely get rid of this old crank?” I couldn't bring myself to put them through this.

I wanted explanations; they gave equations. I had often wondered about the reflection of light, for example. I looked through dozens of books to no avail. They always just pictured a wave or a photon hitting a straight line and rebounding. Even though I had trouble asking questions and getting satisfactory answers, I still thought that they knew something I didn't. And this continued for four years of classes. Then it happened.

It was in my twelfth quarter—a cold day in the April of 1983. I had found a textbook that tried to explain the reality of magnetism in addition to the math. The realities of relativity are not easy for an old brain to picture and it was taking me time. I spent two days wrestling with one page of this book—trying to get their picture. I finally got it. And they were wrong. “Hey!” It hit like a bolt of

lightning. A sudden realization that was both clear and irrevocable. It was like the bolt that started it all in 1979: “Quit your job and go study physics!” Clear and irrevocable. This one was “Quit your studies and strike out on your own!”

Preparing For a Job

As planned, I had gotten back quite a lot of my forgotten Chinese and was ready to start looking for a job. But by this time I had also learned a lot of Japanese and I was considering the possibility of teaching Japanese as well. As I continued to get rejections for my Chinese and Japanese applications, I got an indirect feeler from AUA in Bangkok. The American lady who had replaced me when I left had taken another job in Bangkok and AUA was looking for someone to take her place. But I had left in a huff. I had been insulted when I found out that for my entire 18 years at AUA I had been at the very bottom of the pay scale for the American staff. I most certainly wasn't bubbling with enthusiasm about going back to a job where my ideas had run dry. In fact it was the first time since I was 25 that I was considering doing something more for money than enjoyment. But this period of 'why not' didn't last long. Before the feeler got any further, my life changed.

Proving Practice

Remember that at the same time I was studying physics I also had classes in Chinese and Japanese. I was excited as I walked into the Japanese class that fall quarter of 1980. I had never been less than number one in a language class—and that was without trying. This time I was going to knock myself out. Getting an “A” wouldn't be enough. Being the best in the class wouldn't be enough. I was going to be the best the world had ever seen. You wouldn't believe the extremes I went to. I was more like a threatened animal fighting for its life than a student trying to learn a language.

As I look back now, I can see the folly. Perfect performance isn't the goal of language learning. It isn't the means of learning languages. And it isn't the proof of language learned. But if that's true, just what is this 'perfect performance' I had been aiming for all my life? Could it be nothing more than doing the wrong thing better than anybody else?

It's surprising how good we get at changing goals to meet results. I had to admit that I couldn't speak Japanese, so I changed my goal from speaking Japanese to practicing it. I could practice Japanese better than anyone else in the world! (It reminds me of a 'Duffy' cartoon. Duffy said, “I always followed the old adage, ‘practice makes perfect.’ And look at me today. Perfect at practicing.” What could I do with this skill? Teach students to practice Japanese, of course. And why should I do this? Well they weren't learning to speak Japanese anyway. With my help at least they would be able to deliver practiced sentences and get praise and grades—like I had done all my life. I teamed up with the head of the Japanese department to teach beginning Japanese the following quarter. I would orchestrate the practice. She would provide the talk.

I was delighted with the results. I thought the students loved me and had learned more than anyone ever had before them. I couldn't wait for the students' appraisals to come in. I got them on December 14, 1983, and with my heart beating wildly I read them. They all hated me and my practice—even those who had done it perfectly. And they all loved the delightful Japanese teacher with her charm and her natural talk. I cried myself to sleep that night. I had hit rock bottom.

Now, let me introduce my colleague Adrian Palmer (Buzz). He had come to Thailand after finishing his doctorate in linguistics to get a few years of experience in the field before starting a career at a university. During his four years in Thailand we became close friends. We even wrote

two AUA Thai textbooks together. He eventually ended up at the University of Utah so we saw a lot of each other during my four years of study at the U.

The day after that awful night when I cried myself to sleep, I went to see Buzz in his office. “What went wrong?” He handed me a copy of **The Natural Approach** by Krashen and Terrell that he had received that very day. I knew all about Stephen Krashen’s ideas on language acquisition. Buzz had been a close friend of Krashen for many years and had kept me informed. I was interested in Krashen’s ideas all this time, but I had those damned blinders. What does it take to get past lifelong blinders? Rock bottom, that’s what. I had read Krashen’s previous book looking down from above. I now read this one looking up from rock bottom. It was a sudden conversion.

Now while I was convinced of the basic principle of the Natural Approach, I certainly wasn’t convinced of Tracy Terrell’s way of teaching it. In those two weeks I had to take my version of the Natural Approach and create a class. Whew!

It was 1984 and the room number was 101 (a student explained the meaning of this to me). We took it one day at a time. I would stay up all night planning for the next day and then meet with the assistant for an hour before every class. It was terribly awkward. I couldn’t speak Japanese; I only had two weeks to invent a teaching method; neither my assistant nor I had ever done anything like this before; and he only had an hour before class every day to find out what he was supposed to do. Terribly awkward. At the end of the quarter I braced myself for the student appraisals. They loved it!

During that fateful quarter I was also sitting in on Buzz’s class on language teaching theory. We arranged to give a class in Natural Thai the following quarter. All fourteen signed up, along with a few others. It was still awkward. But unlike Japanese, I could speak Thai. And I was now experienced (one whole term!).

After a few days it occurred to me that the students might think they weren’t getting real Thai and I brought Kwan in to join me. My only motivation was to show off. “See? My Thai sounds just like hers.” But it turned out to be the biggest single step in the whole development of my kind of natural approach. I had done team teaching at Cornell 30 years before, but that was only a way to bring together a person who knew how to teach with a person who knew how to speak. The same thing was true of the two terms I teamed up to teach Japanese. But since I could speak Thai fluently it never occurred to me to have two teachers. Not until the day I decided to show off.

There were two big differences between my way and that of Krashen and Terrell. Krashen had said that the students shouldn’t try to say anything during the first ten hours. He called it the ‘silent period’. Buzz and I both agreed that the silent period should be lengthened considerably—perhaps by many times. If indeed ‘you learn to speak by listening’, why should they speak at all? Any time spent with the students speaking would be wasted. Terrell’s method consisted of constant interchanges between teacher and students, so half of the time was wasted. But two-way talking is what language is all about. How are the students going to hear questions and answers? Of course! Two teachers talking to each other. So there were the two basic differences. Two or more teachers and nonspeaking students. I can’t even imagine a successful program that didn’t have both.

I stumbled through that spring quarter, learning mostly what not to do. The one big breakthrough came on the last day. From time to time I had spent a few minutes on daily routines: getting up in the morning, walking to school, making a sandwich, and the like. Nothing more than five minutes at a time. But on the last day, as a review, I brought them all together. I went through a whole day of routines—from getting up in the morning to going to bed at night. It took most of the hour.

Student attention was riveted on my every move and they understood everything. It was a big success. When I later went back to AUA to develop the natural approach, I designed the classrooms to have sinks, stoves, and other fixtures so we could go through routines a big part of every hour.

Even though only half of the activities during that first term actually worked, it was enough to sell the method to those future teachers of languages and I myself was completely convinced. My future was fixed. I couldn't accept a job that didn't give me complete freedom to teach languages my way. I knew of only one place in the world that could give me this freedom. AUA. They wanted me to come back and run the Thai department in the old way as I rewrote my old Thai textbooks. I said this was impossible. It had to be Natural or nothing. They said I could come give a demonstration class in Natural for one term and then decide.

We moved back to Thailand in October of 1984 and my new life began.

Chapter 7 - Putting Cascades in the Classroom

Getting Started

Every time I think about that 5-week demonstration term in November of 1984, I almost die of embarrassment. The director had advertised it as a whole new way to learn a language, and he had invited professors and language teachers from all over Bangkok to come and observe it in action. The class consisted of my wife and me and 15 students in front of nearly 100 observers (mostly linguists and language teachers from the universities). It was like giving a piano concert in your first week of piano lessons. Not only was our teaching little more than fumbling in the dark, but I was doing the fumbling in my non-native Thai. I cringe as I recall the experience. The class met 2 hours a day and I spent most of the other 22 hours groping for ideas. It wasn't a satisfying experience.

The director had advertised our method as 'Natural Approach', and we were stuck with the name. In Thailand, 'NA' had come to mean 'AUA's variety of the Natural Approach'. For the world market, we used the name 'The Listening Approach' or sometimes 'the Natural Approach as practiced at AUA'. We now call it 'Automatic Language Growth' or 'ALG'. This chapter tells the history of the development of ALG.

The Methods

I had a pretty good idea of the course I was setting out to build, I didn't know how to handle those 'others'.

1. *The minimal unit of natural learning is an interesting experience (a happening).*
2. *The non-speaking part of this happening should carry most of the meaning.*
3. *There should be two or more teachers talking through the happening.*
4. *The students should be involved in the happening without speaking.*
5. *The students' attention should be on the happening—not the teacher talk.*

Don't Speak

William Powers had given me the general answer years earlier with his 'behavior is the control of perception'—which becomes 'speaking is the control of listening' when applied to language learning. But even then there are a couple of steps remaining to complete Powers' loop and give the answer 'you learn to speak by listening'. It took me 10 years to complete this loop. So when the dam broke, I wasn't able to get any help from Powers. It was Stephen Krashen that came to my rescue.

Krashen's method, in my view, can be reduced to these two sentences. "Humans acquire language in only one way—by understanding messages," and "Speaking is the result of this acquisition—not its cause." I especially liked the two word version of the second sentence: "Speech emerges."

"Understanding messages" and "speech emerges." When you apply this to toddlers and Zambis, it's obvious. But can we put it in the classroom? The classroom answer to the first part would appear to be "provide lots of understandable messages". But what do we do with the second part? The answer really should be "nothing"—it's the automatic result of the first part.

Outlawing student talk may be a bit drastic, but surely it was easy enough to im-plement. I told the teachers not to let students speak Thai in class. Still they tried to speak!

I put up signs in all classrooms, “Don’t speak Thai in class.” Still they tried to speak!

I papered doors and walls with signs—big ones, “Don’t speak Thai in class.” Surely they can’t miss all of those signs. Still they tried to speak!

I gave up on signs and went from class to class telling the students “Don’t speak Thai in class.” They still tried to speak!

I told the teachers to fine students 10 baht (about 50 cents) for every word of Thai the spoke in class. But they still tried to speak! And when the teachers chose to enforce the fine, they paid. The teachers used the money for a party every Friday.

The students still tried to speak, but the teachers didn’t report them to me. It was a collusion.

Did speaking really cause damage, or was I being unrealistic? Hard evidence had to wait three years. In July of 1987 we started the first year-long class of more than a thousand hours, and there were four students eager enough to go the distance: Paul, David, Peter, and Charlie. Paul and David never spoke; but, in spite of all our warnings, Peter and Charlie did—right from day one. They finished the course, they all settled down in Thailand, and they all dropped in to see us over the years. After a few years, Peter and Charlie were struggling with broken Thai like all long-time foreigners. But Paul and David had passed me up. Me! The original guinea pig of practice and 40 year resident of Thailand!

Now, 15 years and thousands of students later, we’ve had hundreds of students who went more than a thousand hours with speaking and dozens who went the same distance without. None of the ‘speakers’ ever got close to my mark while some ‘non-speakers’ eventually passed it. But not all. That is, some ‘non-speakers’ passed me and some didn’t. It looked like there was something besides speaking that was causing damage.

Don’t Think

“Don’t speak. Don’t ask. Don’t look up words. Don’t take notes.” I wasn’t doing any of those things in my own natural study of Chinese and I saw that a new prohibition was needed. What? It seemed obvious. Don’t think! But wait. ‘Don’t think’ covers them all—not just the linguist’s meddling. Obviously you’ve got to think about the language for these three: asking questions, looking up words, and taking notes. But what about speaking? After the language has been built, you don’t have to think it up—it pops. But before the language has been built, it can’t pop—if you want it, you have to think it. “Don’t think about the language” covers all of the terrible four.

The terrible fifth then becomes “don’t analyze”, and the terrible five become one: “Don’t think about the language.” We’ve finally reached the elusive magic to natural learning. Never think about the language! Toddlers score 100% on this, of course, while most adults, like Mary, score close to 0%. The difference is so great that it gave rise to the myth that children lose it at puberty.

The Teachers

Developing ALG Teachers

After the demonstration term in late 1984, one of our teachers showed an especially strong interest in ALG and became my assistant as we stumbled through the first two terms of 1985. She then stumbled through the third term with another interested teacher as her assistant. But in the fourth term it happened. In just a matter of days she went from fumbler to expert. I was stunned by the sudden transformation.

But that was nothing compared to the young man who had been her first assistant. He had graduated to lead teacher in his third term and, like the rest of us, was very uncertain. He always had a half-smile on his face like he was laughing at himself playing the fool. Then one day I saw that smile disappear. It was still there as he finished the first activity of the hour and it was gone as he started the next.

It looked like it was going to be easy to convert our teachers from SA to ALG. Fumble for four months and ‘Presto’. But it wasn’t.

My wife and I were on a five-day cruise to islands in the Andaman Sea. There were 104 of us tourists, 4 guides, and the crew. We spent each day on a different island and slept as the boat cruised on to the next. It was delightful. Those guides kept us entertained all of our waking hours. I thought of our closest American friends who had visited us 17 years earlier. Once I thought of our friends *understanding* (in much the same way our students did), I realized that they would also be *learning Thai* (in much the same way our students did). That’s precisely the meaning of ‘natural learning’: understanding happenings.

The Andaman cruise was the turning point; and now, after 15 years, most of our ‘teachers’ are *guides*. If only most of our ‘students’ could be *tourists*!

Training ALG Teachers

I said above that when children reach puberty they don’t lose the ability to grow languages; they gain the ability to try. That’s from the point of view of the child. But now look at the adults as they interact with growing children. When children reach puberty, *adults change, too*. They change the way they talk to them.

ALG teaching is not instinctive. It has to be learned. But in some cases—like our second teacher taking polaroid pictures—the learning can be fast.

Materials

Activities

In 1945 I knew how effective the bicycle incident was; I just couldn’t see how to put it into the classroom. Then in 1985 I witnessed the conversion of our second ALG teacher as he took polaroid pictures. *That’s how!* So this became the unit of ALG materials: planned happenings. I called them ‘activities’. In the early years we planned three or four activities an hour chosen from the following 14 types.

1. Classroom procedures: Taking the roll, making announcements, etc.
2. Manipulating objects: Colored blocks, water in buckets, cups, and spoons, etc.
3. Daily routines: Getting up in the morning, making breakfast, taking a bath, etc.
4. Demonstrations: Using a computer, scientific experiments, magicians’ acts, etc.

5. Physical activities: Sports, exercise, physical games, dancing, etc.
6. Fun and games: Table games, party games, puzzles, toys, etc.
7. Information about students: teachers talking about the students' statistics.
8. Show and tell: Students bring objects and teachers talk about them.
9. Pictures and maps: Snapshots, slides, picture magazines, etc.
10. Role-plays: Taxi driver and fare, waiter and customer, doctor and patient.
11. Stories: Children's stories, folk tales, comic books, anecdotes, etc.
12. General information: bus routes, weather data, current events, etc.
13. Cultural information about target country: how they eat, dance, bathe, etc.
14. 'Sheltered' subject matter (teaching classes in the target language).

Three activities an hour, 5 hours a day, 5 days a week, 5 weeks a term, 9 terms a year. That's 3,375 activities needed for a year-long course. And these had to be carefully ordered to ensure understanding. Here's an example of an activity that could easily be understood on the very first day.

Understanding without noticing words—that's the name of the game. Anything not attached to an experience is worthless. But can we really ignore words?

Vocabulary

As we started the course at AUA, the biggest unknown was what to do about vocabulary. Anyway, we experimented with several different ways of handling words. Like these. Anything that we put on paper had an ordered list of suggestions for how to use it. It took me three more years to finally clear up my uncertainty. The answer I found is best explained with these two words: 'wonder' and 'grow'. Words have to grow—gradually. Experience by experience. And the mechanism of growing in each experience is 'wondering'.

Measuring Learning

Let's look at our model: the toddlers. Of course *you* know how much your little girl knows without testing, but what if *I* wanted to know? I wouldn't give her a test. I would simply ask her age. If you told me she was 22 months, I would know that she understood most childhood talk, could say lots of words, and was just beginning to put two words together into a novel sentence. They couldn't say anything in Thai and wanted to know whether it was working. And when they asked "How am I doing?", all I had to do was to find out their 'age'—just like I did with the little girl. "How many hours of class have you had?" And I soon started to get a feeling for what these 'ages' meant in terms of results. Just as I knew what most toddlers of age 12, 18, and 24 months could do, I could tell fairly well what ALG students of 'age' 200, 400, and 600 hours could do. And I could even start to match up the results of student hours with toddler months.

The Second Generation

In mid 1988, we completed our first full year course, and two of the students, Paul and David, had maintained a *ceiling** of near-100%. They were clearly budding successes. A few years later both of them had passed me up and were bubbling with enthusiasm for the magic they had experienced. Paul settled down in Northeast Thailand where Lao is spoken. He spoke Thai to them and they

spoke Lao to him (like a Norwegian settling down in Denmark). Paul's *natural* course in Lao was even better than his *school* ALG course in Thai, and within a few years his Lao was even better than his Thai.

* *The 'ceiling' is one of the aspects of monitoring the ALG student described in detail in the complete version of this book.*

David settled down near Bangkok and kept in close touch with us. In 1994 he expressed an interest in helping us out—just as I was about to turn 70 and was looking for someone to take my place. As expected, he could see things I couldn't. I eagerly continued my yearly visits—but not to give guidance as planned. To learn about all the new wonders.